by random chart abstraction from 1999 (n=281 cases) and 2000(n=313 cases). Appropriate (class I & IIa) and inappropriate (class IIb & III) cath. was determined for 6 subsets of coronary artery disease(CAD): known/suspected CAD, nonspecific chest pain, unstable angina, post-revascularization ischemia, post-infarction(MI), and CHF. The table summarizes overall model results from the 2 surveys.

Results: An improvement was observed in appropriate cath. use from 1999 to 2000 for known/suspected CAD(from 35% to 19%; P<0.05). An increase in inappropriate cath. occurred for unstable angina(from 0 to 26%; P<0.05). In both surveys, there was high inappropriate cath. in nonspecific chest pain (100% and 98%) and post-revascularization ischemia(55% and 77%; P=NS), often before noninvasive ischemia testing. Model performance improved in 2000, with only 1% of cases undiagnosed & unclassified.

Conclusion: We conclude that this new decision analysis model, validated against ACC/AHA Practice Guidelines in Florida, can be prospectively exported to benchmark cath. appropriateness in CAD pts. in other U.S. health systems.

	1999	2000
Cath. Appropriate (Class I or IIa)	124 (44%)	96 (31%)
Cath. Inappropriate (Class IIb or III)	96 (34%)	136 (43%)

POSTER SESSION

1121 Trends in Cardiovascular Outcomes

Monday, March 31, 2003, Noon-2:00 p.m.
McCormick Place, Hall A
Presentation Hour: Noon-1:00 p.m.

1121-51 Is the Incidence of Coronary Heart Disease Changing Over Time?

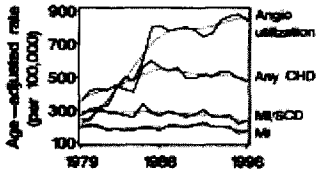
Theresa J. Arciero, Steven J. Jacobsen, Robert L. Frye, Guy S. Reeder, Susan A. Weston, Jill M. Killian, Véronique L. Roger, Mayo Clinic, Rochester, MN

Background: Despite primary prevention efforts, the incidence of hospitalized myocardial infarction (MI) changed little over the last 2 decades. Yet, it is unknown whether MI trends reflect overall coronary heart disease (CHD) trends. This study was designed to test the hypothesis that the incidence of CHD, as measured by other indicators, did not change over time.

Methods: Resources of the Rochester Epidemiology Project ascertained all CHD, including MI, unexpected sudden cardiac death (SCD), or significant coronary disease at angiography through community medical records using standardized epidemiological criteria. Secular trends were analyzed with Poisson regression.

Results: From 1979 to 1998, 5454 incident cases of CHD (MI 1983, SCD 770, angiography 2701) occurred. The age-adjusted incidence of CHD changed over time ($p=<0.001$) (Figure). In the first decade, it increased paralleling increased use of coronary angiography in the population. In the most recent decade, despite continued modest increase in use of angiography, the incidence of all CHD declined in parallel to MI and MI/SCD. Over time, a larger proportion of persons with incident CHD were identified by positive angiography than MI/SCD (p=<0.001).

Conclusion: Over the last decade, characterized by increased surveillance, the incidence of CHD declined suggesting benefits of prevention. Further, a sizable component of the CHD burden is identified by angiography, which is essential to more fully characterize CHD in the population.



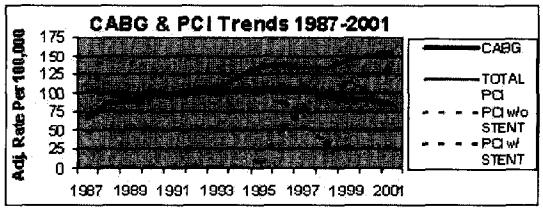
1121-52 Coronary Artery Bypass Graft Surgery Rates Are Decreasing: An Analysis of Trends in Surgery and Percutaneous Coronary Intervention Rates in Washington State From 1987-2001

Matthew R. Ulrich, Douglas M. Brock, Andrew A. Ziskind, University of Washington, Seattle, WA

Background: Advances in percutaneous coronary intervention (PCI) and preventive strategies may decrease the need for coronary artery bypass graft surgery (CABG). This would have major implications for physician and hospital planning with regard to capacity and the geographic distribution of cardiac services.

Methods: Hosptial discharge data was obtained from the Washington State Dept of Health Comprehensive Hospital Abstract Reporting System and classified as CABG or PCI based on procedure codes from ICD-9-CM. Time series statistical analyses including age-sex adjustment and standardization to the year 2000 was performed to normalize case rates for changes in population demographics.

Results:



Washington State CABG rates (cases/100,000 population/yr) were stable until 1997. CABG rates then decreased from 105 in 1997 to 85 in 2001 (20% decrease). Total PCI rates increased from 69 in 1987 to 157 in 2001 (128% increase). CABG rates increased only for the subset of pts 75 and older.

Conclusions: These data confirm that CABG rates are indeed decreasing in the general population. An increase in PCI rates appears to account for the majority of this decrease.

1121-53 Improving Outcome of Percutaneous Coronary Intervention Through Application of Guidelines and Benchmarking: Reduction of Blood Transfusion as a Model

Stanley J. Chetcuti, Paul M. Grossman, Debabrata Mukherjee, Eva M. Kline-Rogers, Cecelia Montoye, David Share, Michael J. O'Donnell, Ann Maxwell-Eward, William L. Meengs, John G. McGinnity, Kirit Patel, Mauro M. Moscucci, for the Blue Cross Blue Shield Michigan Cardiovascular Consortium (BMC2), University of Michigan Health System, Ann Arbor, MI

Background: The reported incidence of blood transfusion (Tx) following PCI varies between 4 and 8%. No studies have assessed the potential impact of Tx guidelines on Tx frequencies after PCI. Methods: Clinical procedural and outcome data on 25,144 consecutive PCIs were prospectively collected between July 1997 and September 2001 in a consortium of 8 hospitals in Michigan. Any Tx event regardless of number of units transfused was recorded. A bedside tool with guidelines for Tx according to the American College of Physicians criteria was prepared and prospectively used in one of the participating institution. Additional interventions toward reduction of blood transfusion in this institution included continuous discussion with residents and other cardiologists of indication for blood Tx. Results: In 1998, the Tx rate was significantly higher in the index institution when compared with the consortium (p<0.001) (Table). Over the following 3 years, there was a progressive decrease in the frequency of Tx in this institution. In 2001, the Tx rate in the same institution was the lowest within the consortium. This reduction in Tx rates was not associated with a change in case mix, use of GP IIb/IIIa receptor blockers (>90% of cases in 2001) or with worse acute and long-term outcomes. Conclusions: Tx is relatively common after PCI. The observed decrease in Tx rates in this study through benchmarking and application of available guidelines suggests that Tx might be a potential target for quality improvement efforts.

Transfusion rates/year

	Transfusion Rates Year 1998	Transfusion Rates Year 1999	Transfusion Rates Year 2000	Transfusion Rates Year 2001
Index Hospital	9.1*	6.8*	4.9	3.2**
Consortium	3.5	4.2	5.1	4.9

* p<0.01 vs consortium; **p=0.09 vs consortium;

1121-58 Changing Sex Differences in Invasive Cardiac Procedure Rates Following Acute Myocardial Infarction

Alan C. Wilson, John B. Kostis, Janet Lawrence-Nelson, Nora M. Cosgrove, Pearl D'Sa, for MIDAS, UMDNJ-Robert Wood Johnson Medical School, New Brunswick, NJ

Background: It is recognized that women receive fewer invasive cardiac procedures than men after acute myocardial infarction (AMI). However, changes in this gender gap over time have not been well characterized.

Methods: Using a database of 193,805 patients who were hospitalized for AMI in New Jersey from 1986 to 1999, we examined rates of coronary angiography (CATH), angioplasty (PTCA), and coronary artery bypass graft (CABG) performed within 90 days of their index admission.

Results: In 1986 the unadjusted rate of CATH for women was 13.5 % compared to 24.8% for men (a relative rate of 0.54); by 1999 CATH rates had increased to 43.8 % for women and 60.6 % for men (a relative rate of 0.72). However the absolute difference had widened from 11.3 % to 16.8 %. The adjusted odds ratio, controlling for age, AMI severity, and year, for sex (men = 1) was 0.77 (95% CI, 0.75-0.78). Stratifying the analysis by